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CATALOGUE OF PLANTS COLLECTED IN JULY, 1883, DURING AN EXCURSION ALONG THE PACIFIC COAST IN SOUTHEASTERN ALASKA.

BY THOMAS MEEHAN.

Few new plants have been discovered along the northern Pacific coast, since its examination by the naturalists who accompanied the navigators and explorers of the earlier part of the century ; and the results of their labors, as given in Rothrock's *Flora of Alaska*, the *Geological Survey of Canada*, and other lists, seem scarcely to warrant any addition to the botanical literature of this part of the continent. The local histories of these plants are, however, yet not well known; and it seems to me I may add a little to this knowledge by some account of the collection made during July, 1883, in a short trip on the " Idaho," a mail steamer from Portland to Sitka, and trading at various points along the coast at many Indian-fishing settlements.

My object in the journey was simply to get a glance at this interesting country, and the price demanded by the company for my wife, son, and myself, $375, for first-class accommodations for a month, not seeming unreasonable, we took the journey. The only opportunity for collecting was during the few hours spent in taking out and re-shipping stores at the stopping places ; and the fact that in this short time and hurried gathering, I was able to collect 275 species, indicates a greater richness of the flora than I expected before starting on the journey. In a number of places, also, the botanizing had to be done under an umbrella in pouring rain, which wholly forbade entrance into the forests, and led to an examination of the shore-lines alone. Rothrock's list embraces but 590 species, including grasses and carices, which, fearing I should not have time in my rapid journey, I seldom touched. My impression is that when we shall have had better opportunities of examining the interior of the territory, the list of Alaskan plants will be still more largely increased. It is true my list embraces the contiguous territory ; but probably all north of the Columbia River—of the Straits of Fuca at least—may be regarded as one geographical area up and down which plants may be expected to travel.

Since the publication of Rothrock's Catalogue, other collectors have added to our knowledge of localities, though their work has not been published. The Herbarium of the Academy of Natural Sciences of Philadelphia is rich through the labors of Harrington, Kellogg and Davidson, and the author is indebted in a great measure to their specimens for assistance in the identification of his own.

The collection made at Bartlett (sometimes called Hood's) Bay, is probably the first made at that point; and it is the interest attached to this that, chiefly, leads the author to publish the paper.

On our return from Chilcat (written Tchillcat in some charts) down the Lynn Channel, we ran up Icy Straits into Glacier Bay, to the fifth or Muir Great Glacier; and on our return, passed in between the Beardslee Islands to the mainland at a point opposite Cross or Icy Sound in about lat. 58.30, called on our chart Bartlett Bay. This is on a peninsula formed by the junction of Icy Sound with the Lynn Channel, and nothing seems to be known of this immense tract of land, except what can be gathered from the not over-friendly Indians who live along the coast in the fishing season. An Indian trader, Mr. Richard Willoughby, told the author that at a point about twenty-five miles above this he had traveled northwest across the peninsula for some forty miles to Pyramid Harbor, near the mouth of the Chilcat, as he was understood to say wholly on ice. It is quite probable that at about a hundred miles north from Bartlett Bay the country is a vast ice-sheet, and there were circumstances which seemed clearly to show that at no great distance of time in the past the whole of the western portion of this peninsula was covered by ice; while on the eastern shore, on Lynn Channel, the forest trees showed the mixture of trees of various ages common to old forests; the forests of the western slope were all comparatively young, and none were evidently over fifty years of age. The earth to fifty feet or more in depth in many places was composed wholly of glacial drift, and on this were the young forest trees. Some remarks on these features more in detail are given at page 187, 1883, of the *Proceedings of the Academy*. Since they were published, Mr. Dall has kindly informed the author that there is historical evidence to show that this part was covered by ice at about the end of the past century. This being so, it becomes a matter of considerable interest to ascertain how so many plants have maintained an existence here—whether they have appeared since the recession of the ice, or whether they managed to retain their hold during the whole continuance of the ice-sheet.

At our landing place a small stream entered the ocean, and this stream came through a swampy valley a few hundred feet wide, extending into the land for an unknown distance. The hills of drift were on each side of this valley. All the plants were collected within a quarter of a mile of the mouth of this stream, and there is every reason to believe that a larger number of species might have been collected had there been time or opportunity for more inland research along its line. By the margin of the swamp were rocks from five to ten or twenty feet above its ground level, and not covered by drift; but on the more level rocks often with a few feet of sand, which had evidently blown in during the course of years. Yet with every opportunity to do so had there been time for the work, very few of the plants along the line of the stream had extended to the drift deposits close by. These plants were not brought there by the drift. We may say almost with certainty that they were there during the period when the land was covered by ice. How did they manage to maintain themselves under these circumstances? Were they wholly covered by ice? or were there rifts and clefts in the ice-sheet deep enough to allow plants a summer of recuperation?

I think we need not regard the last consideration as one of necessity. There is reason to believe that under a low temperature plants will retain vital power for an indefinite period. Mr. Douglas, of Waukegan, Illinois, once sent to me young trees of *Catalpa speciosa*, that had been placed in sand in a cool cellar and forgotten a year, and that remained the whole twelve months dormant, and grew the next year when planted out. Dr. Maxwell T. Masters, of London, has called attention to the case of an orchid which, as I remember, remained under ground a whole season without growing, and this has been adduced as a probable explanation of the non-appearance in some seasons of plants which are plentiful in others. If a plant will remain dormant one, two or three years under unfavorable conditions for growth, who shall say how much longer a period they may not live, under conditions favorable to dormancy only? I have a strong suspicion that just at or below the freezing-point roots may live for an unlimited number of years; and that a district might be covered by an ice-sheet for a quarter of a century or more, and the plants beneath retain full vital powers.

By referring again to my remarks on some geological features of this part of Alaska (page 183, *Proc. Ac.*, as cited), it will be seen by a sunken forest of apparently modern trees there is reason to believe that in comparatively recent times this peninsula was clothed with a rich vegetation—that it was of a sudden partially submerged and perhaps as suddenly elevated again a little—and that all these changes have been the work of but a few hundred years. The plants in question have probably survived through all these changes, though perhaps wholly ice-covered at times, and have not been brought here by modern agencies ; and if these suggestions, which are offered only as great probabilities, should get fuller confirmation from any one in the future who may have opportunities of going more fully into an investigation of the spot, it will give additional interest to the study of botany in connection with the great changes which have been going on over the surface of our globe.

From other botanical evidences which southeastern Alaska affords, I am inclined to believe that geological changes in this section have not required the long periods to effect which geologists usually demand. In the vicinity of the Davidson Glacier, a little below Pyramid Harbor, layers of ice may be seen covered by sand and earth, and prevented from rapid thawing—only an occasional spot showing the icy bed beneath—and yet alder and other plants grow within a few hundred yards. On the other hand, near the Muir Glacier, at the point where the river-bed beneath the ice diverges from the glacier's direct course, the only sign of arborescent vegetation is from a few score of willow-bushes, scattered on the mountain-side. Beneath the drift, hundreds of feet below, is a forest buried as it grew. Pines, alders, and similar plants spread so readily in this region, that these bare hill-sides would assuredly be clothed thickly with a forest vegetation, thus replacing the forests which have been swept away, if there had been time enough for the purpose. The immense area and great depth of these treeless drift formations would surely be regarded as requiring perhaps many centuries for deposit, but for the evidence which the botanical observations afford that the whole change must have taken place within very recent times.

In making the catalogue I have followed the example set by Mr. Watson, in the Bibliographical Index; a general view of the relation of the species to each other is furnished by the natural orders in systematic sequence—all the rest is alphabetical. In a systematic work on botany, an alphabetical index appears at the end. A catalogue should be itself an index, as its chief use is for reference and not for systematic study.

RANUNCULACEÆ.

Aconitum napellus Linn. Harrisburg, Alaska.

Actæa spicata, var. **arguta** Watson. Pyramid Harbor, Alaska.

Aquilegia formosa Fisch. Harrisburg, Alaska.

Caltha palustris L. Pyramid Harbor, Harrisburg, Alaska.

Coptis asplenifolia Salisb. Fort Wrangel, Alaska.

Seen also at Sitka and many places through Alaska, but very seldom could I find fruit. The fine specimens from Fort Wrangel were the only good ones found, and I had to look a long time there among the plants before any were seen.

Ranunculus flammula, var. **reptans** Meyer. Departure Bay, B. C., in summer-dried, muddy places.

R. orthorhynchus Hook. Fort Wrangel, Alaska.

Some of the flowers were of a deep orange-brown, but mostly of an ordinary butter-cup yellow. Plant three to four feet high.

R. recurvatus Poir. Fort Wrangel, Alaska.

R. repens L. Harrisburg, Alaska.

CRUCIFERÆ.

Arabis alpina L. Killisnow Island, Alaska.

A. hirsuta Scop. Chilcat Inlet, Harrisburg, Alaska.

A. petræa, var. **ambigua** Regel. Chilcat Inlet, Harrisburg, Killisnow Island.

Common on rocks in Alaska.

Cochlearia Anglica L. Harrisburg, Alaska.

C. officinalis L. Idaho Inlet, a newly explored arm of Cross Sound, by our steamer "Idaho."

A small form growing in mud, covered at high tide. Plants from half inch to one and one-half inches in length, in full flower, but no mature fruit.

Erysimum cheiranthoides L. Killisnow[1] Island, Alaska.

But common through the territory, growing from one foot high to sometimes five feet.

Nasturtium amphibium R. Br. Harrisburg, Alaska.

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[1] Kenasnow on some maps.

VIOLACEÆ.

Viola sarmentosa Dougl. Harrisburg, Alaska. Perfect flowering.

V. sarmentosa. In open gravelly places. Departure Bay, Alaska. Cleistogamous.

Arenaria lateriflora L. Pyramid Harbor, Alaska.

Cerastium alpinum L. Bartlett Bay, Alaska.

Honkenya peploides Ehrb. Killisnow Island, Alaska.

I did not see Indians eating this, but I saw it in their canoes, brought from places where it grew; and often saw pieces lying around where their camp-fires had been. I believe they cook and eat it.

Spergula arvensis L. Harrisburg, Alaska; clefts of rocks by the seaside.

Stellaria borealis Bigel. Harrisburg, Sitka, Alaska.

S. crispa Ch. and Sch. Pyramid Harbor, Harrisburg, Alaska. Common.

S. longifolia Muhl. Harrisburg, Alaska.

Sagina procumbens L. Sitka, Alaska.

PORTULACACEÆ.

Claytonia sarmentosa C. A. Mey. Fort Wrangel, Alaska.

This is evidently the plant intended by Pursh as *C. lanceolata*, but I believe my plant is what is regarded as above. It is common along the coast, and is extremely variable. Eaten by Indians.

Montia fontana L. Sitka, Alaska.

I saw only some half dozen small plants under a cabin set on logs, and suspected it was an introduced plant.

HYPERICACEÆ.

Hypericum Scouleri Hook. Departure Bay, B. C.

MALVACEÆ.

Sidalcea malvæflora Gray. Victoria, B. C.

This appears to me somewhat different from the plant of the more southern portion of the continent; but Mr. Serano Watson decides it to be this species. Two to three feet high.

GERANIACEÆ.

Geranium erianthum D. C. Killisnow Island, Alaska.

G. pusillum Lin. Port Townsend, W. T.; Victoria, B. C.

Impatiens fulva Nutt. Harrisburg, Alaska.

SAPINDACEÆ.

Acer rubrum L. Pyramid Harbor, Alaska.

LEGUMINOSÆ.

Astragalus alpinus L. Pyramid Harbor, Alaska.

A. hypoglottis L. Bartlett Bay, Alaska.

Lathyrus maritimus Bigl. Pyramid Harbor, Alaska.

Lupinus Nookatensis Don. Bartlett Bay, Alaska.

L. micranthus Doug. Victoria, B. C.

Oxytropis Lamberti Pursh. Pyramid Harbor, Alaska.

Psoralea physodes Dougl. Port Townsend, W. T.

More capitate than I have before seen it.

Trifolium involucratum Willd. Port Townsend, W. T.; Victoria, B. C.

T microdon Hook. Port Townsend, W. T.; Victoria, B. C.

Vicia gigantea Hook. Sitka; Killisnow Island, and other places in Alaska.

ROSACEÆ.

Amelanchia alnifolia Nutt. Astoria, Or.

A dwarf variety, with large black, and excellent fruit.

Dryas octopetela L. Bartlett Bay, Alaska.

Plants without inflorescence. Glacier Bay, near Muir Glacier, a single large plant with fruit, on a moraine deposit.

Fragaria chilensis Duch. Chilcat Inlet, Alaska, also in Bartlett Bay.

This species interested me by the dark color of the upper surface of the leaves as contrasted with the lower; the deeply incised first (autumn) leaves; the enormous runners, often two feet long before bearing a plant; the very long—often over a foot—and slender common peduncles of the later flowers, and very short, often nearly sessile common peduncles of the earliest flowers; the very large flowers; and pale, scarcely red fruit. The Indian boys and girls go out and collect them, as our boys and girls do. At Killisnow Island, I did not see them growing, but Indian women brought them to our landing, and knew enough of our language to ask " ten cents " for small measures of them.

F. vesca L. Departure Bay, B. C.

I believe I saw it in Alaska, but have no specimen.

Geum macrophyllum Willd. Pyramid Harbor. Common in Alaska.

Neillia opulifolia B. & H. Departure Bay, B. C.

Nuttallia cerasiformis T. & G. Astoria, Or.

Pyrus rivularis Doug. Astoria, Or.; Victoria, B. C.; Sitka, Alaska.

P. sambucifolia Ch. & S. Pyramid Harbor, Alaska.

I saw but one plant, on an Indian trail so steep and slimy, it was impossible to climb. It had no fruit; but on the trail were several red fruit, evidently of this species, but not one-fourth the ordinary size, about the size of an elderberry. At Sitka I saw the plant with the full-sized fruit, half mature, that we see further south.

Potentilla fragiformis Willd., var. **villosa.** Chilcat Inlet, Sitka, Alaska.

Varying in habit.

Prunus emarginata Walp., var. **mollis.** Astoria, Or.

Rosa gymnocarpa Nutt. Departure Bay, B. C.

In open places a shrub two to three feet, but along the trail through woods not too dense, it would rise six to eight feet high ; and the red fruit, one to three on a common peduncle, made a very ornamental shrub.

R. Nutkana Presl. (**R. cinnamomea** Hook). Pyramid Harbor, Alaska; Victoria, and some forms everywhere.

Varies very much in size and form of fruit, sometimes having them as large as Damson plums ; seems generally characterized by very large stipules, especially on the upper part of the flowering stem.

Rubus leucodermis Dougl. Departure Bay, B. C.; Astoria, Or.

Leaves commonly pinnate, with five leaflets. Fruit better than the Eastern Black Cap, which it resembles.

R. nutkanus Moçino. Killisnow Island; but very common throughout the coast.

R. spectabilis Pursh. Killisnow Island ; but everywhere throughout Alaska.

The fruit is most prevalently of an amber-yellow, but often scarlet or red. The flavor is wholly that of a blackberry, rather than of a raspberry, and they vary very much in size. The Indian women of Sitka have very large ones, which they sell on the road-side. At Killisnow Island I saw two Indian women, whom I encountered in the woods, gathering the soft green tops of the summer shoots in large bunches. They made signs to me that they ate them ; I suppose cooked.

R. stellatus Smith. Sitka.

Though the plants seemed abundant, many flowers were abortive, and a large number had but a single red carpel, or two or three only. I had trouble to find a few with perfect berries.

R. ursinus Ch. & S. Departure Bay, B. C.

Spiræa Aruncus L. Harrisburg, Alaska; Departure Bay, B. C.

S. discolor Pursh. Victoria, B. C.; Harrisburg, and common along the Alaskan coast.

I am not able to decide to which of the varieties these northern forms should be referred, but they strike one differently from the plant I have collected in the Rocky Mountains, *S. dumosa.*

Sanguisorba canadensis C. & S. Bartlett Bay, Alaska.

SAXIFRAGACEÆ.

Heuchera glabra Willd. Harrisburg, Alaska.

H. micrantha Dougl. Harrisburg, Alaska.

Parnassia palustris L. Bartlett Bay, Alaska.

Ribes bracteosum Dougl. Pyramid Harbor, Alaska, and common along the coast.

Very striking by the stems as thick as one's finger, and very stout annual shoots, enormous maple-like leaves, long leaf-stalks, and racemes eight to ten inches long. The berries are called by the Indians " Shaum," as I understood them. They are gathered and preserved in fat for winter use.

R. divaricatum Dougl. Port Townsend, W. T.

R. lacustre Pois. Port Townsend, W. T.; Harrisburg, Alaska.

R. Hudsonianum Richard. Fort Wrangel, Alaska.

This seems to grow only about stumps or dead logs. I believe the berries are used by Indians, as are those of *R. bracteosum.*

R. sanguineum Pur. Departure Bay, B. C.

R. subvestita Hook.?

Fruit very large—as large as the English gooseberry, which even the foliage somewhat resembles. The berry is covered by viscid hairs, by which even a large berry will adhere to the finger. The color of the fruit is scarlet, but the flavor is insipid. The shrub grows about four to five feet high.

Saxifraga leucanthemifolia Mx. Harrisburg, Alaska.

S. tricuspidata Retz. Chilcat Inlet, Alaska.

Tellima grandiflora R. Br. Harrisburg, Alaska.

Tiarella trifoliata L. Port Townsend, W. T., and northwards.

CRASSULACEÆ.

Sedum spathulæfolium Hook. Victoria, B. C.

S. Rhodiola D. C. Bartlett Bay, Alaska.

DROSERACEÆ.

Drosera rotundifolia L. Fort Wrangel, Alaska.

ONAGRACEÆ.

Circæa alpina L. Harrisburg, Alaska.

Epilobium affine Bong. Fort Wrangel, Sitka, Alaska.

E alpinum L. Pyramid Harbor, Killisnow Island, Alaska.

E. latifolium L. Pyramid Harbor, Muir Glacier, Alaska.

E. minutum Lindl. Fort Wrangel, Alaska.

E. paniculatum Nutt. Departure Bay, B. C.

E. spicatum, Lam. Port Townsend, W. T.

About eighteen inches or two feet, with narrow leaves (¼ inch), tapering gradually at both ends. Victoria, B. C., two to three feet, leaves broader; Killisnow Island, Alaska, four to five feet high, leaves one to one and one-half inches broad, spike leafy, and inclined to be paniculate.

CUCURBITACEÆ.

Echinocystis lobata T. & G. Columbia River, above Astoria, Or.

UMBELLIFERÆ

Archangelica Gmeleni D. C. Harrisburg, Kaigan, and other places in Alaska.

The few whites we met called it "celery." In many Indian lodges I saw bundles of fresh flower stems, and in some cases Indians peeling or stringing them as we do rhubarb stalks, and eating them raw with apparent relish.

It is interesting to note that Linnæus, in his tour in Lapland, notes that the Laplanders use this plant in the same way.

Crantzia lineata Nutt. Columbia River, above Astoria, Or.

Heracleum lanatum Mx. Harrisburg and many other places in Alaska.

Geological survey of Canada says Indians eat the leaf-stalks; but I saw no evidence of this in Alaska.

Ligusticum scoticum L. Idaho Inlet, Killisnow, Harrisburg, Alaska.

Common along the Alaskan coast.

Œnanthe sarmentosa Presl. Departure Bay, B. C.

Sanicula Menziesii Hook & Arn. Port Townsend, W. T., Victoria, B. C.

Sium cicutæfolium Gmel. Astoria, Or.

ARALIACEÆ.

Fatsia horrida B. & H. Pyramid Harbor, Harrisburg, and other places in Alaska.

Often forming dense underbrush in forests, growing four to eight feet high, and making traveling impossible unless with great labor. An Indian explained to me that it was in common use with them as a medicine.

CORNACEÆ.

Cornus stolonifera Mx. Pyramid Harbor, Alaska.

C. canadensis L. Sitka, Fort Wrangel, Alaska.

CAPRIFOLIACEÆ.

Lonicera hispidula Dougl.

I see no difference between the yellow and red forms, though they strike one as distinct when growing. The red form, Port Townsend, W. T.

L. involucrata Banks. Kaigan, Alaska.

Seemingly different from the Colorado plant, but chiefly in size and habit. The plant has a sarmentose or half-climbing character. It grows up the hemlock trees as they grow; and, when the lower branches of the hemlock die, the stems of the Lonicera remind one of grapevines. But the plant travels along the lower living or dead branches of the hemlock, outwards to the light. Away from trees they are self-supporting, but yet the branches are somewhat pendulous. In such cases eight to ten feet high.

Linnæa borealis Gron. Port Townsend, W. T.

Sambucus racemosa Mx. Fort Wrangel, Alaska.

Familiar as I am with the var. *pubens* of the Allegheny and Rocky Mountains, I could hardly believe the forms deserved to be regarded as identical after seeing the Alaska plants, especially those about Fort Wrangel. The inflorescence was strictly racemose, which the more eastern form is not. Shrubs six to ten feet, and as wide, covered with brilliant scarlet berries, were extremely attractive.

Symphoricarpus racemosus Mx. Victoria, B. C.

Viburnum ellipticum Hook. Pyramid Harbor, Alaska.

RUBIACEÆ.

Galium asprellum Mx. Victoria, B. C.

Slender habit. Harrisburg and Sitka, coarse and straggling.

G. triflorum Mx. Port Townsend, W. T.; Victoria, B. C.; Harrisburg, Sitka, Alaska.

Leaves getting broader from each location northwards.

COMPOSITÆ.

Adenocaulon bicolor Hook. Port Townsend, W. T.

Achillea millefolium L. Port Townsend, W. T.; Victoria, B. C.; Harrisburg, Alaska.

Much more vigorous and hairy than the eastern plant, and generally with deep rosy, occasionally with pinky white, but rarely, if ever, with pure white flowers.

Anaphalis margaritacea Benth. Bartlett Bay, Chilcat Inlet, Alaska.

Antennaria alpina Gaert. Chilcat Inlet, Bartlett Bay, Alaska.

Arnica Chamissonis Less. Bartlett Bay, Alaska.

Aster Douglasii Hook. Columbia River, Astoria, Or.

Bahia lanata Nutt. Port Townsend, W. T.; Victoria, B. C.

Cnicus edulis Gray. Columbia River, above Astoria, Or.; Departure Bay, B. C.

Erigeron acre L. Bartlett Bay, Alaska.

E. alpinum L. Bartlett Bay, Alaska.

E. Philadelphicum. Victoria, B. C.

E. speciosum D. C. Port Townsend, W. T.

Gnaphalium purpureum Lin. Port Townsend, W. T.

Hieracium albiflorum Hook. Port Townsend, W. T.

H. cynoglossoides Amt. Touv. Port Townsend, W. T.

H. Scouleri Hook. Departure Bay, B. C.

Leontodon hirsutum Hook. Port Townsend, W. T.

Densely hairy; Victoria, B. C., slightly hairy and more slender than the Port Townsend plant.

Madia filipes Gray. Port Townsend, W. T.; Victoria, B. C.

M. Nuttalliana Gray. Port Townsend, W. T.; Victoria, B. C.

Micromeris Bigelowii Gray. Victoria, B. C.

Nabalus alatus Hook. Harrisburg, Fort Wrangel, Sitka, Alaska.

Pyrethrum Parthenium L.

A single plant on the Columbia River, four miles above Astoria, most likely introduced, but worth recording as noting the commencement of naturalization.

Senecio pseud-arnica Hook. Killisnow Island, Alaska.

Solidago elongata Nutt. Victoria, B. C.

S. multiradiata Ait. Bartlett Bay, Alaska.

Sonchus oleraceus L. Astoria, Or.; Departure Bay, B. C.

Quite common, but I suppose introduced in some way.

Taraxacum palustre Lin. Departure Bay, B. C.; Port Townsend, W. T.

Campanula rotundifolia L. Chilcat Inlet, Alaska.

In the crevices of rocks; the flowers very large, and the stems very stout. Indian name "narl," and represented as "good for medicine."

C. Scouleri Hook. Departure Bay, B. C.

About four inches high, densely leafy, and leaves narrow in open rocky places; a foot high, slender, leaves broad and scattered in somewhat shady places.

ERICACEÆ.

Arbutus Menziesii Pursh. Departure Bay, B. C.

Bryanthus glanduliferus Gray. Bartlett Bay, Alaska.

Cassiope Mertensiana Don. Bartlett Bay, Alaska.

C. tetragona Don. Bartlett Bay, Alaska.

Gaultheria Shallon Pursh. Port Townsend, W. T.

One to two feet high; Kaigan and other places in Alaska, two to four feet or more, and forming a dense undergrowth rendering the forest almost impassable.

Kalmia glauca L. Fort Wrangel, Alaska.

Ledum palustre L. Fort Wrangel, Sitka, Alaska.

Leaves broader as the plant extends northwards.

Menziesia ferruginia Smith. Fort Wrangel, Sitka, and Pyramid Harbor, Alaska.

Moneses uniflora Gray. Bartlett Bay, Alaska.

Pyrola chlorantha Swartz. Pyramid Harbor, Alaska.

P. rotundifolia Lin. Port Townsend, W. T.

P. secunda Lin. Pyramid Harbor, Alaska.

Vaccinium ovalifolium Sm. Fort Wrangel, Alaska.

V. ovatum Pursh. Columbia River, above Astoria, Or.

V. parvifolium Sm. Columbia River, above Astoria, Or.

V. uliginosum L. Bartlett Bay, Alaska.

V. Vitis-Idæa L. Sitka, Fort Wrangel, Alaska.

PLUMBAGINACEÆ.

Armeria vulgaris Willd. Victoria, B. C.

PRIMULACEÆ.

Dodecatheon Meadia L. Killisnow Island, Alaska.

Var. *macrocarpum* probably. Clefts of rocks along the shore.

Glaux maritima L. Fort Wrangel, Alaska.

Primula borealis Duby. Bartlett Bay, Alaska.

Trientalis Europæa Linn. Sitka, Alaska.

T. Europæa, var. *arctica* Fisch. Harrisburg, Alaska.

OLEACEÆ.

Fraxinus Oregana Nutt. Victoria, B. C.

But perhaps introduced.

GENTIANACEÆ.

Gentiana amarella L., var. *acuta* Engel. Departure Bay.

POLEMONIACEÆ.

Collomia heterophylla Hook. Columbia River, above Astoria.

There is in the Herbarium of the Academy of Natural Sciences of Philadelphia, a specimen of this, and perhaps from the same locality, simply marked " Gilia, Columbia River." In the same paper is a specimen marked *Navarretia heterophylla* Benth., " from Durand's Herbarium," which is almost smooth, not viscous as this is, and accords with the figure in Hook. Bot. Mag., t. 2895, which this and Nuttall's specimen scarcely do.

BORRAGINACEÆ.

Mertensia maritima Don. Killisnow Island, Alaska.

SCROPHULARIACEÆ.

Boschniakia glabra C. H. Meyer. Pyramid Harbor, Alaska.

Among alders, apparently in the track of a receding glacier. A long woody thread descends from the base of the scaly flower stem, but in the haste of collecting I did not find to what the thread was attached, if it were attached at all. The Indians make no use of the plant, but class it with plants which are " cultash " (no good). Their name for this is " Asquakali."

Castillija hispida Benth. Pyramid Harbor, Alaska.

C. miniata Dougl. Victoria, B. C.

C pallida Kunth. Pyramid Harbor, Alaska.

Common through Alaska, and varying very much, especially in the colors of the bracts and flowers.

Euphrasia officinalis L. Bartlett Bay, Alaska.

Mimulus dentatus Nutt. Astoria, Or.

Though from the numerous variations of *M. luteus* L. this might be regarded as but a variety of that species, it has a very distinct appearance when seen growing. The dark, blue-green, thick leaves are particularly striking. This might be owing to the sub-saline locality—so many maritime plants having foliage of this character; but the normal *M. luteus* may be often seen in similar situations, and without these characters. Dr. Gray, in *Botanical Gazette*, now regards it as a good species.

Mimulus luteus L. Harrisburg, Alaska.

Common along the coast.

Pedicularis palustris, var. *Wlassoviana* Bunge. Bartlett Bay, Alaska.

Scrophularia Californica Cham. Astoria, Or.

Veronica scutellata L. Departure Bay, B. C.

V. alpina L. ? Bartlett Bay, Alaska.

LENTIBULARIACEÆ.

Pinguicula vulgaris L. Bartlett Bay, Alaska.

LABIATÆ.

Brunella vulgaris L. Victoria, B. C.

This does not strike me quite like the introduced form of the Eastern States, and is most likely indigenous.

Galeopsis Tetrahit L. Sitka, Alaska.

A patch of a few yards in extent, but seemingly many years established, on the shore, near the old city, was the only locality noted on the journey, and suggests that the plant may have been a Russian introduction.

Mentha canadensis L. Departure Bay, B. C.

Micromeria Douglasii Benth. Port Townsend, W. T.

Stachys ciliata Doug. Victoria, B. C.

Damp, grassy places. A very ornamental plant.

PLANTAGINACEÆ.

Plantago major, var. *Asiatica* D. C. Fort Wrangel, Alaska.

P. major, var. *minima* Dec. Departure Bay, B. C.

Both these forms grow in saline soil, and the location can have no influence on their very distinct appearances.

POLYGONACEÆ.

Polygonum viviparum L. Killisnow Island, Alaska.

Rumex domesticus Hart. Hoona (Bartlett Bay).

Petioles a foot long, and half an inch wide. Leaf-blade about a foot long and nine inches wide at the base, tapering towards the obtuse apex. My specimens moulded in drying too badly to determine properly. I have followed other collectors in naming the plant, though I am inclined to regard it rather as *R. Patienta* L. The petioles are eaten by the Indians as we use the garden rhubarb.

R. salicifolius Wienm. Bartlett Bay, Alaska.

CHENOPODIACEÆ.

Atripex patula, var. *littoralis* Gray. Harrisburg, Sitka, Fort Wrangel, and other places along the coast.

EMPETRACEÆ.

Empetrum nigrum L. Bartlett Bay, Alaska.

BETULACEÆ.

Alnus rubra Bong. Pyramid Harbor, Kaigan, Alaska.
A. viridis D. C. Harrisburg, Alaska.

I have identified these with much hesitation, regretting on my return home to find my material confined to a single branch of each—the alders of Alaska being worthy, as I now believe, of closer investigation. My botanizing at Harrisburg, and at Kaigan, had to be done beneath an umbrella and in pouring rain—unfavorable for the close study of arborescent growth. If the identifications are correct, the names would deserve to be transposed. The "Harrisburg" species is the one prevalent from there south through British Columbia to the Columbia River, often making a tree I should judge from thirty to forty feet high, and with a trunk occasionally say five to six feet in circumference. The bark of the trunk is a dark reddish brown. The finely serrulate leaves, however, seem precisely like the leaves of *A. viridis*, as I have collected it on the mountains of New Hampshire, and North Carolina, though it is difficult to believe so small a shrub there, should be so fine a tree here.

The alder of Kaigan and Pyramid Harbor is a much larger tree, with a gray and rather smooth bark, even when quite aged. At Pyramid Harbor, a summer settlement for salmon-fishing, Indians had cut some down, and were making canoes—dug-outs—of them. From memory I am sure some of these logs must have been near three feet thick, and thirty feet long—the original height of the tree being probably more than double this. These were on rich bottom lands, near but not on the retreating glacier's track. On the track the same plant apparently made a dense shrubby growth, not taking on at all a tree-like character.

Betula papyracea Ait. Chilcat Inlet, Alaska.

Probably this species; but the leaves seem all cordate and densely woolly. Only a single tree was seen, not mature apparently; but there might have been more, for when found it was approaching midnight and getting almost too dark for further explorations.

SALICACEÆ.

Salix Pallasii And. Bartlett Bay, Alaska.

S. reticulata L. Bartlett Bay, Alaska.

S. Sitchensis Sanson, var. *denudata* And. Bartlett Bay, Alaska.

S. Barclayi And. Bartlett Bay, Alaska.

CUPULIFERÆ.

Quercus Kellogii Newb. Victoria, B. C.

Where exposed to the sea-breezes this seemed but a small "chinquapin"-like bush two or three feet; but only a short distance in the island it becomes a fine timber tree. I believe this is as far north as I saw any species of oak growing.

TAXACEÆ.

Taxus brevifolia Nutt. Victoria, B. C., and Port Townsend, W. T.

A few trees in the vicinity of Victoria, quite as large as some seen in the Calaveras grove of Sequoias, and probably growing further north, though not seen.

CONIFERÆ.

Abies grandis Lindl. Port Townsend, W. T.; Victoria, B. C.

Chamæcyparis Nutkænsis Spach.

Is said by authors to be very abundant from the Columbia River northward through British Columbia and southeastern Alaska. I could not find a single specimen, though continually on the lookout for it, and the owner of a saw-mill at Killisnow Island informed us that the "yellow cedar" was an extremely rare tree in that region.

Picea Sitchensis Carriere (*Abies Menziesii*, of some modern authors).

Common everywhere through British Columbia to the head of Glacier Bay, Alaska, at the latter place forming buried forests near the Muir Glacier and Bartlett Bay. At Kaigan some trees measured twenty-one feet round. It evidently loves atmospheric moisture, and grows on barren rocks, when it is under these atmospheric conditions, quite vigorously; and in this way assists in forming a covering of earth over the rocks. At Kaigan there were trees of many years old, growing from the top of the Indian "totem poles," half as tall as the poles at times.

Pinus contorta Dougl. Chilcat Inlet.

A tree about twenty or thirty feet high, with a rather flattish, spreading head; short ovoid cones, and which are not at all oblique, growing among rocks along the coast.

Also at Bartlett Bay, where it is a stout, very vigorous shrub, branching from the base, without any attempt to make a leader, and much resembling the habit of *Pinus montana* of Europe. The plants were very fertile, the cones being freely scattered among the branches, and cylindrical, without any tendency to obliquity.

Following the Botany of California this would probably be referred to the true *P. contorta*, of Douglas, and the first named to *P. contorta*, var. *Murrayana*, though the characters, as I find them, do not quite agree. I have thought best to leave the determination indefinite.

Tsuga Mertensiana Carriere. Port Townsend, W. T.; Victoria, B. C., and common along the coast. Specimens from Fort Wrangel.

This is the "hemlock" of these parts, and some of the trees at Sitka and Fort Wrangel were as large, at least, as the best specimens of the hemlock found at the East.

Tseudtsuga Douglasii Carriere. Port Townsend, W. T.; Victoria, B. C.; Sitka, Alaska.

Thuja gigantea Nutt. Port Townsend, W. T.; Victoria, B. C.; Kaigan, Alaska. Common along the coast.

This, *Tsuga Mertensiana*, and alders, form most of the arborescent vegetation of the southeastern Alaskan coast.

ORCHIDACEÆ.

Habenaria dilitata Gray. Port Townsend, W. T.

As it seems to me, though it may be a form of *H. leucostachys* Wat.

H. hyperborea. Bartlett Bay, in glacial drift.

Spiranthes Romanzoffiana Cham. Bartlett Bay, Alaska.

IRIDACEÆ.

Sisyrinchium anceps L. Sitka

Not abundant, but probably indigenous.

LILIACEÆ.

Allium acuminatum Hook. Victoria, B. C.

Brodiæa lactea Watson. Port Townsend, W. T.; Victoria, B. C.

B. grandiflora Watson. Victoria, B. C.

An imperfect specimen; probably belongs here.

Prosartes Oregana Watson. Victoria, B. C.

Smilacina bifolia, var. **dilitata** Wood. Sitka, Fort Wrangel, and many places along the coast, but seldom found in fruit.

The fruiting specimens here from Sitka, have also three, and sometimes four, leaves on the scape.

Streptopus amplexifolius D. C. Fort Wrangel, Alaska.

Tofieldia glutinosa Willd. Bartlett Bay, Alaska.

ARACEÆ.

Lysichiton Camtschatcense Schott. Fort Wrangel, and throughout the coast.

Leaves larger, narrower and much more glaucous than its analogue, the skunk cabbage of the Eastern States.

Two young deer, about a year old, were captured while attempting to swim across a four-mile stretch of an arm of the sea, and brought on board the steamer, the captain intending to take them to San Francisco. They took well to their imprisonment; but after some time, the ship's boat brought back a lot of these leaves. I remarked to the captain that the acrid leaves would probably be fatal to the animals, but he remarked that they would not eat them so freely if injurious, and they were fed continuously for several days on them, when one died. The captain's idea was that it died of sea-sickness. It had been very rough the night it died. The other one finally recovered.

NAIDACEÆ.

Triglochin maritimum L. Fort Wrangel, Alaska.

T. palustre L. Bartlett Bay, Alaska.

JUNCACEÆ.

Juncus arcticus Willd. Bartlett Bay, Alaska.

J. Balticus Dethard. Fort Wrangel.

Varies in size in different localities.

J. bufonius L. Sitka, Alaska.

J. filiformis L. Astoria, Or.

J. xiphioides Meyer. Fort Wrangel, Alaska.

Luzula campestris D. C. Sitka, Alaska.

L. spadicea, var *parviflora* Meyer. Fort Wrangel, Alaska.

CYPERACEÆ.

Carex cryptocarpa. Alaska.

C. muricata Linn. Alaska.

C. undetermined. Alaska.

C. undetermined. Alaska.

Eriophorum gracile Koch. Fort Wrangel, Alaska.

Scirpus pungens Vahl. Fort Wrangel, Alaska.

GRAMINEÆ.

(Identified by F. Lamson Scribner.)

Agrostis alba var. *scaberrima.* Bartlett Bay, Alaska.

A. canina, var. Sitka, Alaska.

A. exarata Trin. Sitka, Alaska.

A vulgaris Nutt. Sitka, Alaska.

Aira caryophyllea L. Victoria, B. C.

Alopecurus aristulatus Mx. Departure Bay, B. C.

Atropus angustata Ledeb. Sitka, Alaska.

Deschampsia elongata. Departure Bay, B. C.

Deyeuxia Langsdorffii Kunth. Fort Wrangel, Alaska.

Elymus Sibiricus L. Departure Bay, B. C.

This seemed so great a favorite with the birds that it was with difficulty I got a few complete spikes for herbarium.

Elymus mollis Trin. Pyramid Harbor, Alaska.

This is a broad-leaved, strong-growing kind, growing along sandy shores as *E. arenarius* does in other places; and not uncommon along the coast.

Festuca ovina, var. *duriuscula.* Bartlett Bay, Alaska.

Festuca ovina, var. *duriuscula.* Sitka, Alaska.

The last spike much more decompound.

Glyceria angustata Griesb. Idaho Inlet, Cross Sound, Alaska.

Mr. Scribner refers it to Griesbach's species without deciding whether or not it should be united with *G. distans* G. The plant was growing in mud overflowed at high-tide, and formed a dense carpet of green grass on the mud. The growth is about four to six inches.

G. distans Gr. Fort Wrangel, Alaska.

G. pauciflora Presl. Sitka, Alaska.

Hierochlœ borealis L. Bartlett Bay, Alaska.

Holcus lanatus L. Astoria, Or.

Only one plant noted, on the hills along the river, about four miles above Astoria. *Pyrethrum Parthenium* was also collected within a few feet of it.

Hordeum nodosum L. Bartlett Bay, Fort Wrangel, Alaska.

Phleum alpinum L. Bartlett Bay, Alaska.

P. pratense L Sitka, Alaska.

Common in grassy places ; but possibly introduced.

Poa pratensis L. Bartlett Bay, Alaska.

Both the green and the bronzy forms.

Trisetum spicatum, var. *molle,* Gray. Bartlett Bay, Alaska.

EQUISETACEÆ.

Equisetum variegatum Sch. Bartlett Bay, Alaska.

FILICES.

Adiantum pedatum L. Harrisburg, Killisnow Island, Alaska.

Pinnules more deeply lobed, and the divisions of the stipe more elongated and slender than the Eastern form.

Aspidium munitum Kaul. Departure Bay, B. C.

Very variable in size; but always seeming very fertile.

A. aculeatum Swartz. Harrisburg, Alaska.

Cryptogramme acrostichoides R. Br. Bartlett Bay, Alaska.

Very vigorous, fronds 9 to 10 inches.

Cystopteris bulbifera. Pyramid Harbor, Alaska.

Cystopteris fragilis. Pyramid Harbor, Alaska.

Lomaria Spicant Desveaux. Sitka, Alaska.

Phegopteris Dryopteris, Fee. Fort Wrangel, Alaska.

Phegopteris polypoides Fee. Bartlett Bay, Alaska.

Polypodium falcatum Kellogg. Killisnow Island, Alaska.

Polypodium vulgare L. Killisnow Island.

Pteris aquilina L. Victoria, B. C. Fort Wrangel, Alaska.

LYCOPODIACEÆ.

Lycopodium annotinum L. Killisnow Island, Alaska.